

## WEST Search History

DATE: Thursday, June 09, 2005

<u>Hide?</u>	<u>Set Name</u>	<u>Query</u>	<u>Hit Count</u>
		<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L6	L3 and amyloglucosidase	1
<input type="checkbox"/>	L5	L3 and amylglucosidase	0
<input type="checkbox"/>	L4	L1 and (crispus or cripus)	1
<input type="checkbox"/>	L3	L1 and (hexose oxidase or glucose oxidase)	8
<input type="checkbox"/>	L2	L1 and marine organism	22
<input type="checkbox"/>	L1	(anti adj3 fouling) and (enzyme or oxidase)	153

END OF SEARCH HISTORY

# Hit List

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[Generate OACS](#)

Search Results - Record(s) 1 through 22 of 22 returned.

☐ 1. Document ID: US 20050013843 A1

L2: Entry 1 of 22

File: PGPB

Jan 20, 2005

PGPUB-DOCUMENT-NUMBER: 20050013843  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20050013843 A1

TITLE: Hybrid anti-fouling coating compositions and methods for preventing the fouling of surfaces subjected to a marine environment

PUBLICATION-DATE: January 20, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Detty, Michael R.	Rochester	NY	US	
Drake, Michael D.	Glendale	MD	US	
Tang, Ying	Amherst	NY	US	
Bright, Frank V.	Williamsville	NY	US	

US-CL-CURRENT: 424/426; 106/15.05, 427/421.1, 427/429, 427/430.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw D
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☐ 2. Document ID: US 20040221789 A1

L2: Entry 2 of 22

File: PGPB

Nov 11, 2004

PGPUB-DOCUMENT-NUMBER: 20040221789  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20040221789 A1

TITLE: Watercraft storage apparatus and method

PUBLICATION-DATE: November 11, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nelson, Bruce D.	South Haven	MN	US	

US-CL-CURRENT: 114/263

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 3. Document ID: US 20040175407 A1

L2: Entry 3 of 22

File: PGPB

Sep 9, 2004

PGPUB-DOCUMENT-NUMBER: 20040175407

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040175407 A1

TITLE: Microorganism coating components, coatings, and coated surfaces

PUBLICATION-DATE: September 9, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
McDaniel, C. Steven	Austin	TX	US	

US-CL-CURRENT: 424/423; 435/287.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 4. Document ID: US 20040109872 A1

L2: Entry 4 of 22

File: PGPB

Jun 10, 2004

PGPUB-DOCUMENT-NUMBER: 20040109872

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040109872 A1

TITLE: Porifera-based therapeutic compositions for treating and preventing skin diseases

PUBLICATION-DATE: June 10, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Villani, Maria	Laguna Niguel	CA	US	

US-CL-CURRENT: 424/195.16; 424/725

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 5. Document ID: US 20040019143 A1

L2: Entry 5 of 22

File: PGPB

Jan 29, 2004

PGPUB-DOCUMENT-NUMBER: 20040019143

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040019143 A1

TITLE: Polymer composites and methods for making and using same

PUBLICATION-DATE: January 29, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Koloski, Timothy S.	West Amherst	NY	US	
Vargo, Terrence G.	Kenmore	NY	US	

US-CL-CURRENT: 524/434

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 6. Document ID: US 20040009159 A1

L2: Entry 6 of 22

File: PGPB

Jan 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040009159

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040009159 A1

TITLE: Coatings with enhanced microbial performance

PUBLICATION-DATE: January 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Polsenski, Martin J.	Jacksonville	FL	US	
Leavitt, Richard I.	Ponte Vedra Beach	FL	US	

US-CL-CURRENT: 424/93.45

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 7. Document ID: US 20030166237 A1

L2: Entry 7 of 22

File: PGPB

Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030166237

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030166237 A1

TITLE: Antifouling paint composition comprising rosin and enzyme

PUBLICATION-DATE: September 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Allermann, Knud	Rungsted Kyst		DK	
Schneider, Ib	Copenhagen		DK	

US-CL-CURRENT: 435/204; 106/16, 435/200, 435/222

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 8. Document ID: US 20030087338 A1

L2: Entry 8 of 22

File: PGPB

May 8, 2003

PGPUB-DOCUMENT-NUMBER: 20030087338

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030087338 A1

TITLE: Adhesive DOPA-containing polymers and related methods of use

PUBLICATION-DATE: May 8, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Messersmith, Phillip B.	Clarendon Hills	IL	US	
Huang, Kui	Evanston	IL	US	
Lee, Bruce P.	Evanston	IL	US	
Dalsin, Jeffrey	Chicago	IL	US	
Hu, Bi-Huang	Chicago	IL	US	
Friedstat, Jonathan	Wilmette	IL	US	

US-CL-CURRENT: 435/68.1; 527/200

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 9. Document ID: US 20020142022 A1

L2: Entry 9 of 22

File: PGPB

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20020142022

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020142022 A1

TITLE: Method of controlled release and controlled release microstructures

PUBLICATION-DATE: October 3, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Price, Ronald R.	Stevensville	MD	US	
Schnur, Joel M.	Burke	VA	US	
Schoen, Paul E.	Alexandria	VA	US	
Testoff, Mary	Greenbelt	MD	US	
Georger, Jacque H. JR.	Springfield	VA	US	
Rudolph, Alan	Bowie	MD	US	

Brady, Robert F. Gaithersburg MD US

US-CL-CURRENT: 424/405; 424/417, 424/450

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 10. Document ID: US 20020106361 A1

L2: Entry 10 of 22

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Poulsen, Charlotte Horsmans	Brabrand		DK	
Kragh, Karsten Matthias	Viby J,		DK	

US-CL-CURRENT: 424/94.4; 504/117, 523/105

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 11. Document ID: US 20010051274 A1

L2: Entry 11 of 22

File: PGPB

Dec 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010051274

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010051274 A1

TITLE: Antifouling compounds and uses thereof

PUBLICATION-DATE: December 13, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Alberte, Randall S.	Falmouth	ME	US	
Zimmerman, Richard C.	Pacific Grove	CA	US	

US-CL-CURRENT: 428/411.1; 424/411, 523/122

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 12. Document ID: US 20010026802 A1

L2: Entry 12 of 22

File: PGPB

Oct 4, 2001

PGPUB-DOCUMENT-NUMBER: 20010026802

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010026802 A1

TITLE: Method of controlled release and controlled release microstructures

PUBLICATION-DATE: October 4, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Price, Ronald R.	Stevensville	MD	US	
Schnur, Joel M.	Burke	VA	US	
Schoen, Paul E.	Alexandria	VA	US	
Testoff, Mary	Greenbelt	MD	US	
Georger, Jacque H. JR.	Springfield	VA	US	
Rudolph, Alan	Bowie	MD	US	
Brady, Robert F.	Gaithersburg	MD	US	

US-CL-CURRENT: 424/405; 424/417, 424/450

Full	Title	Citation	Front	Review	Classification	Data	Reference	Sequences	Attachments	Claims	KWC	Draw De
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☐ 13. Document ID: US 6855513 B1

L2: Entry 13 of 22

File: USPT

Feb 15, 2005

US-PAT-NO: 6855513

DOCUMENT-IDENTIFIER: US 6855513 B1

TITLE: Quorum sensing signaling in bacteria

DATE-ISSUED: February 15, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Whiteley; Marvin	Coralville	IA		
Lee; Kimberly M.	Iowa City	IA		
Greenberg; E. Peter	Iowa City	IA		
Muh; Ute	Iowa City	IA		

US-CL-CURRENT: 435/34; 424/170.1, 424/183.1, 424/93.3, 435/170, 435/173.8, 435/218,  
435/220, 435/252.34, 435/253.3, 435/29, 435/32, 435/340, 435/35, 435/4, 435/440,  
435/463, 435/465, 435/480, 435/488, 435/5, 435/69.8, 435/7.2, 435/7.32, 435/7.4,  
435/7.6, 435/7.8, 435/7.9, 435/91.4, 530/389.5

ABSTRACT:



The invention provides methods for identifying a modulator of quorum sensing signaling in bacteria, and for identifying a quorum sensing controlled gene in bacteria. In addition, the invention provides quorum sensing controlled genetic loci in *Pseudomonas aeruginosa*. Novel indicator strains and vectors for engineering the strains for use in the method of the invention are also provided.

33 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	FIGS	Draw De
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☐ 14. Document ID: US 6608129 B1

L2: Entry 14 of 22

File: USPT

Aug 19, 2003

US-PAT-NO: 6608129

DOCUMENT-IDENTIFIER: US 6608129 B1

TITLE: Polymer composites and methods for making and using same

DATE-ISSUED: August 19, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koloski; Timothy S.	West Amherst	NY		
Vargo; Terrence G.	Kenmore	NY		

US-CL-CURRENT: 524/403; 524/430, 524/431, 524/433, 524/439, 524/502, 524/515,  
524/520, 524/544, 524/546

ABSTRACT:

Composites which include a polymer matrix having natural free volume therein and an inorganic or organic material disposed in the natural free volume of the polymer matrix are disclosed. In addition, methods for making a composite are described. A polymer matrix having free volume therein is provided. The free volume is evacuated, and inorganic or organic molecules are infused into the evacuated free volume of the polymer matrix. The inorganic or organic molecules can then be polymerized under conditions effective to cause the polymerized inorganic or organic molecules to assemble into macromolecular networks. Alternatively, where the polymer matrix contains a functionality, the inorganic or organic molecules can be treated under conditions effective to cause the inorganic or organic molecules to interact with the polymer matrix's functionality. Use of the disclosed composites as photoradiation shields and filters, electromagnetic radiation shields and filters, antistatic layers, heterogeneous catalysts, conducting electrodes, materials having flame and heat retardant properties, components in the construction of electrolytic cells, fuel cells, and optoelectronic devices, and antifouling coatings is also described.

25 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3



Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 15. Document ID: US 6410622 B1

L2: Entry 15 of 22

File: USPT

Jun 25, 2002

US-PAT-NO: 6410622

DOCUMENT-IDENTIFIER: US 6410622 B1

TITLE: Method of preventing fouling organisms in marine environments and polymer-bound nitric oxide/nitric oxide-releasing compositions usable therefor

DATE-ISSUED: June 25, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Endres; Gregory W.	Saline	MI	48176	

US-CL-CURRENT: 524/189; 523/122, 525/360, 525/376, 525/420, 525/437, 525/453,  
525/454, 527/312

## ABSTRACT:

A method of preventing fouling organisms in marine environments comprises the step of introducing into the marine environment in a predetermined form and in a sufficient amount an antifouling composition having as its effective ingredient a nitric oxide-releasing functional group of the diazeniumdiolate structure: ##STR1##

whereupon nitric oxide is controllably released into the marine environment to prevent at least one of the fouling organisms' propagation, ability to attach, and ability to function.

An antifouling composition consists essentially of an antifouling-acceptable carrier and a coprecipitation product of polylactide/glycolide and diethylenetriamine having the formula  $H_{.3}N^{+.}CH_{.2}CH_{.2}N(N_{.2}O_{.2})_{.sup.-1}CH_{.2}CH_{.2}NH_{.2}$ , wherein diethylenetriamine contains a nitric oxide-releasing functional group.

20 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 16. Document ID: US 6280759 B1

L2: Entry 16 of 22

File: USPT

Aug 28, 2001

US-PAT-NO: 6280759

DOCUMENT-IDENTIFIER: US 6280759 B1

TITLE: Method of controlled release and controlled release microstructures

DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Price; Ronald R.	Stevensville	MD	21666	
Schnur; Joel M.	Burke	VA	22015	
Schoen; Paul E.	Alexandria	VA	22304	
Testoff; Mary	Greenbelt	MD	20770	
Georger, Jr.; Jacque H.	Springfield	VA	22153	
Rudolph; Alan	Bowie	MD	20716	
Brady; Robert F.	Gaithersburg	MD	20878	

US-CL-CURRENT: 424/408; 424/405, 424/406, 424/411, 424/417, 424/418, 424/419,  
424/420, 424/499, 523/122

ABSTRACT:

Tubules which contain an active agent in their lumen and compositions containing such microtubules are effective for providing a slow, controlled release of the active agent. Such microtubules are useful in the production of coating compositions for the protection of surfaces coming into contact with water, adhesive resins for the production of laminated wood products, and devices for dispensing pesticides.

14 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KNIC	Draw De
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☐ 17. Document ID: US 5492696 A

L2: Entry 17 of 22

File: USPT

Feb 20, 1996

US-PAT-NO: 5492696

DOCUMENT-IDENTIFIER: US 5492696 A

TITLE: Controlled release microstructures

DATE-ISSUED: February 20, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Price; Ronald R.	Stevensville	MD		
Schnur; Joel M.	Burke	VA		
Schoen; Paul E.	Alexandria	VA		
Testoff; Mary	Greenbelt	MD		
Georger, Jr.; Jacque H.	Springfield	VA		

Rudolph; Alan                      Bowie                      MD  
Brady; Robert F.                      Gaithersburg                      MD

US-CL-CURRENT: 424/417; 264/4.4, 264/4.7, 424/405, 424/406, 424/419

ABSTRACT:

Tubules which contain an active agent in their lumen and compositions containing such microtubules are effective for providing a slow, controlled release of the active agent. Such microtubules are useful in the production of coating compositions for the protection of surfaces coming into contact with water, adhesive resins for the production of laminated wood products, and devices for dispensing pesticides.

3 Claims, 5 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	None	Draw De
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☐ 18. Document ID: US 4594965 A

L2: Entry 18 of 22

File: USPT

Jun 17, 1986

US-PAT-NO: 4594965

DOCUMENT-IDENTIFIER: US 4594965 A

TITLE: Symbiotic aqua-culture

DATE-ISSUED: June 17, 1986

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Asher, Jr.; Donald F.	Annapolis	MD	21403	
Munz, deceased; Otto J.	late of Arlington	VA		
Munz, Executrix; by Gerta H.	Arlington	VA		

US-CL-CURRENT: 119/239; 119/200, 119/242

ABSTRACT:

A symbiotic aqua-culture system includes a barrier fence surrounding a protected body of water in which is extended a conduit having a plurality of tubes therein and which is coaxial with a tubular screen. An electrode in the form of a helically wound wire on the conduit coacts with the tubular screen, which comprises a second electrode, to form an electrical field which attracts marine life and stimulates the growth thereof. The barrier fence may also be constructed to produce an electrical field to inhibit or kill undesired marine organisms attempting to pass through the fence. The tubes within the conduit are connected to sources of various materials, such as nutrients, algacide, heat, etc., and valves are connected with the tubes to control flow therethrough. Orifices connect the tubes with the surface of the conduit along its length to supply the materials as desired. The method of symbiotic mari-culture using the structure is also disclosed.

10 Claims, 7 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw De
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☐ 19. Document ID: US 4297137 A

L2: Entry 19 of 22

File: USPT

Oct 27, 1981

US-PAT-NO: 4297137  
DOCUMENT-IDENTIFIER: US 4297137 A

TITLE: Anti-fouling paint

DATE-ISSUED: October 27, 1981

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sachetto; Jean-Pierre	Saint-Julien-en-Genevois			FR
Cuccolo; Sergio	Geneva			CH

US-CL-CURRENT: 514/493; 106/156.1, 106/156.23, 106/157.8, 106/163.01, 106/203.1,  
106/203.3, 106/204.01, 424/635, 424/638

ABSTRACT:

The invention relates to anti-fouling paints and is concerned with anti-fouling paints developed for inhibiting the fixation of marine organisms on structures which are immersed in sea water, the paints including at least one toxic substance uniformly incorporated into a discontinuous solid matrix which is insoluble in sea water and is dispersed in the paint, the matrix being at least partially formed from at least one substance which becomes soluble in sea water under the action of enzymes liberated by the marine organisms to be inhibited and/or by the bacterial film in contact with the surface of the paint.

The paints according to the invention provide an effective life which is much longer than that of the known anti-fouling paints.

The invention relates to an anti-fouling paint containing at least one toxic substance.

5 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw De
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☐ 20. Document ID: AU 777162 B2, WO 200075293 A2, AU 200050978 A, BR 200010932 A, NO 200105831 A, KR 2002010153 A, US 20020106361 A1, CN 1364185 A, EP 1282669 A2, JP 2003525312 W, MX 2001012448 A1, NZ 515111 A

L2: Entry 20 of 22

File: DWPI

Oct 7, 2004

DERWENT-ACC-NO: 2001-112148

DERWENT-WEEK: 200480

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TITLE: New anti-fouling composition, useful as a coating for treating different surfaces, e.g. outdoor woodwork, external surface of a central heating system, or a hull of a marine vessel

INVENTOR: KRAGH, K M; POULSEN, C H

PRIORITY-DATA: 1999GB-0013050 (June 4, 1999)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
AU 777162 B2	October 7, 2004		000	C12N009/00
WO 200075293 A2	December 14, 2000	E	036	C12N009/00
AU 200050978 A	December 28, 2000		000	
BR 200010932 A	February 26, 2002		000	C12N009/00
NO 200105831 A	January 31, 2002		000	C12N000/00
KR 2002010153 A	February 2, 2002		000	C12N009/00
US 20020106361 A1	August 8, 2002		000	A01N063/00
CN 1364185 A	August 14, 2002		000	C09D005/16
EP 1282669 A2	February 12, 2003	E	000	C09D005/16
JP 2003525312 W	August 26, 2003		042	C09K003/00
MX 2001012448 A1	June 1, 2002		000	C12N009/00
NZ 515111 A	February 27, 2004		000	C12N009/00

INT-CL (IPC): A01 N 63/00; C02 F 1/00; C02 F 1/50; C08 L 89/00; C09 D 5/16; C09 D 7/12; C09 D 201/00; C09 K 3/00; C12 N 0/00; C12 N 9/00; C12 N 9/04; C12 N 9/34

ABSTRACTED-PUB-NO: US20020106361A

## BASIC-ABSTRACT:

NOVELTY - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate.

DETAILED DESCRIPTION - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate. The precursor enzyme and the precursor substrate are selected so that a substrate for the enzyme is generated by action of the precursor enzyme on the precursor substrate. The enzyme and the substrate are selected so that an anti-foulant compound is generated by action of the enzyme on the substrate.

INDEPENDENT CLAIMS are also included for the following:

- (1) a coating consisting of the anti-fouling composition;
- (2) a marine anti-foul consisting of the composition; and
- (3) a method for releasing an anti-fouling compound from a surface coating

comprising incorporating in a surface coating the anti-fouling composition above.

USE - The anti-fouling composition is useful as a coating formulated for treating a surface, e.g. outdoor wood work, external surface of a central heating system, or a hull of a marine vessel (claimed). It is also useful as an anti-fouling agent for marine structures exposed to seawater flora and fauna.

ADVANTAGE - The use of tributyl tin as marine anti-fouls has led to the pollution of surrounding water due to leaching which can cause the degradation of mussel and shell organisms. The use of the present anti-fouling composition is safer for the environment. It also has long term effectiveness in harsh environment, e.g. marine environment. It requires less substrate and less enzyme than prior art systems to provide a given anti-microbial effect. Furthermore, it has improved salt tolerance, which leads to further improved activity in marine environments, and is resistant to degradation by fouling.

ABSTRACTED-PUB-NO:

WO 200075293A EQUIVALENT-ABSTRACTS:

NOVELTY - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate.

DETAILED DESCRIPTION - A new anti-fouling composition comprises a surface coating material, an enzyme obtained or obtainable from a marine organism and a substrate for the enzyme, and/or a precursor enzyme and a precursor substrate. The precursor enzyme and the precursor substrate are selected so that a substrate for the enzyme is generated by action of the precursor enzyme on the precursor substrate. The enzyme and the substrate are selected so that an anti-foulant compound is generated by action of the enzyme on the substrate.

INDEPENDENT CLAIMS are also included for the following:

- (1) a coating consisting of the anti-fouling composition;
- (2) a marine anti-foul consisting of the composition; and
- (3) a method for releasing an anti-fouling compound from a surface coating comprising incorporating in a surface coating the anti-fouling composition above.

USE - The anti-fouling composition is useful as a coating formulated for treating a surface, e.g. outdoor wood work, external surface of a central heating system, or a hull of a marine vessel (claimed). It is also useful as an anti-fouling agent for marine structures exposed to seawater flora and fauna.

ADVANTAGE - The use of tributyl tin as marine anti-fouls has led to the pollution of surrounding water due to leaching which can cause the degradation of mussel and shell organisms. The use of the present anti-fouling composition is safer for the environment. It also has long term effectiveness in harsh environment, e.g. marine environment. It requires less substrate and less enzyme than prior art systems to provide a given anti-microbial effect. Furthermore, it has improved salt tolerance, which leads to further improved activity in marine environments, and is resistant to degradation by fouling.

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	ROME	Draw De
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21. Document ID: GB 2306473 A, GB 2306473 B, JP 09118842 A, JP 09118844 A, JP



09124570 A, US 5770188 A

L2: Entry 21 of 22

File: DWPI

May 7, 1997

DERWENT-ACC-NO: 1997-229317

DERWENT-WEEK: 199902

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TITLE: Glucoside derivatives for enzyme modification - are useful for producing a lipid-coated enzyme in antifouling paint compositions

INVENTOR: HAMADE, R; OKAHATA, Y ; YAMAMORI, N

PRIORITY-DATA: 1995JP-0278722 (October 26, 1995), 1995JP-0278709 (October 26, 1995), 1995JP-0278718 (October 26, 1995)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>GB 2306473 A</u>	May 7, 1997		029	C07C235/06
<u>GB 2306473 B</u>	December 23, 1998		000	C07C235/06
<u>JP 09118842 A</u>	May 6, 1997		006	C09D005/14
<u>JP 09118844 A</u>	May 6, 1997		005	C09D005/16
<u>JP 09124570 A</u>	May 13, 1997		004	C07C235/06
<u>US 5770188 A</u>	June 23, 1998		000	A61K031/74

INT-CL (IPC): A61 K 31/74; C07 C 235/06; C09 D 5/14; C09 D 5/16; C09 D 7/12; C09 D 101/00; C09 D 167/00; C12 N 9/00

ABSTRACTED-PUB-NO: GB 2306473A

## BASIC-ABSTRACT:

Glucoside derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated enzymes in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of marine organisms can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

ABSTRACTED-PUB-NO:

## GB 2306473B EQUIVALENT-ABSTRACTS:

Glucoside derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.



USE - (I) is useful for producing lipid-coated enzymes in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of marine organisms can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

US 5770188A

Glucoside derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated enzymes in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of marine organisms can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D
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☐ 22. Document ID: US 2855358 A

L2: Entry 22 of 22

File: USOC

Oct 7, 1958

US-PAT-NO: 2855358

DOCUMENT-IDENTIFIER: US 2855358 A

TITLE: Galvanic anode

DATE-ISSUED: October 7, 1958

INVENTOR-NAME: BURKE DOUGLAS

US-CL-CURRENT: 204/196.19; 204/196.2, 204/290.05

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D
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Terms	Documents
L1 and marine organism	22

Display Format:

[Previous Page](#)

[Next Page](#)

[Go to Doc#](#)

# Hit List

[Clear](#) [Generate Collection](#) [Print](#) [Fwd Refs](#) [Bkwd Refs](#)  
[Generate OACS](#)

## Search Results - Record(s) 1 through 8 of 8 returned.

### ☐ 1. Document ID: US 20030185870 A1

L3: Entry 1 of 8

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030185870  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030185870 A1

TITLE: Interfacial biomaterials

PUBLICATION-DATE: October 2, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Grinstaff, Mark W.	Durham	NC	US	
Kenan, Daniel J.	Chapel Hill	NC	US	
Walsh, Elisabeth B.	Durham	NC	US	
Middleton, Crystan	Arlington	VA	US	

US-CL-CURRENT: [424/423](#); [530/326](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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### ☐ 2. Document ID: US 20020106361 A1

L3: Entry 2 of 8

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Poulsen, Charlotte Horsmans	Brabrand		DK	
Kragh, Karsten Matthias	Viby J,		DK	

US-CL-CURRENT: [424/94.4](#); [504/117](#), [523/105](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 3. Document ID: US 6291582 B1

L3: Entry 3 of 8

File: USPT

Sep 18, 2001

US-PAT-NO: 6291582

DOCUMENT-IDENTIFIER: US 6291582 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Polymer-protein composites and methods for their preparation and use

DATE-ISSUED: September 18, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dordick; Jonathan S.	Schenectady	NY		
Wang; Ping	Akron	OH		
Sergeeva; Maria Vladimir	San Diego	CA		
Novick; Scott Joel	Iowa City	IA		

US-CL-CURRENT: 525/54.1; 435/177; 435/180; 435/181; 435/182; 527/201; 527/202; 527/203; 530/402; 530/403; 530/812; 530/815; 530/816; 530/817

## ABSTRACT:

A method of preparing a polymer-protein composite based upon placing a protein in solution in an organic phase via the ion-pairing of the protein with a surfactant. The polymer-protein composites are useful, for example, as highly active and stable catalysts, in for example, paints and coatings, as well as in medical application.

28 Claims, 12 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 4. Document ID: US 5965305 A

L3: Entry 4 of 8

File: USPT

Oct 12, 1999

US-PAT-NO: 5965305

DOCUMENT-IDENTIFIER: US 5965305 A

TITLE: Method for surface modification to create regions resistant to adsorption of biomolecules

DATE-ISSUED: October 12, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ligler; Frances S.	Potomac	MD		
Bhatia; Suresh	Burke	VA		
Shriver-Lake; Lisa C.	Silver Spring	MD		
Georger; Jacque	Springfield	VA		
Calvert; Jeff	Burke	VA		
Dulcey; Charles	Washington	DC		

US-CL-CURRENT: 430/17; 430/269, 430/271.1

## ABSTRACT:

Irradiating, with ultraviolet light, surfaces which contain thiol groups, epoxy groups, or vicinal diol groups, results in surfaces which exhibit a reduced adsorption of biomolecules. In the case of surfaces having thiol groups such irradiation also results in a reduced capacity for the bonding of heterobifunctional crosslinking reagents. Such irradiation may be carried out in a patternwise fashion to obtain patterned surfaces.

12 Claims, 4 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMIC	Draw. De
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☐ 5. Document ID: US 5914367 A

L3: Entry 5 of 8

File: USPT

Jun 22, 1999

US-PAT-NO: 5914367

DOCUMENT-IDENTIFIER: US 5914367 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Polymer protein composites and methods for their preparation and use

DATE-ISSUED: June 22, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dordick; Jonathan S.	Iowa City	IA		
Wang; Ping	Knoxville	TN		
Sergeeva; Maria Vladimir	Tiffin	IA		
Novick; Scott Joel	Iowa City	IA		

US-CL-CURRENT: 525/54.1; 527/201, 527/202, 527/203

## ABSTRACT:

A method of preparing a polymer-protein composite including polymerizing a monomer in the presence of a protein dissolved in an organic phase via the ion-pairing of the protein with a surfactant. The polymer-protein composites are useful, for

example, as highly active and stable catalysts, in for example, paints and coatings, as well as in medical application.

23 Claims, 9 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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6. Document ID: US 5540828 A

L3: Entry 6 of 8

File: USPT

Jul 30, 1996

US-PAT-NO: 5540828  
DOCUMENT-IDENTIFIER: US 5540828 A

TITLE: Method for making electrochemical sensors and biosensors having a polymer modified surface

DATE-ISSUED: July 30, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yacynych; Alexander	East Brunswick	NJ	08816	

US-CL-CURRENT: 205/198; 204/403.11, 204/403.14, 204/415, 204/418, 205/317,  
422/82.03, 435/287.2, 435/287.9, 435/817

ABSTRACT:

A method for making a sensing element for use in a sensor or biosensor that amperometrically measures the concentration of an analyte in a liquid, includes the following sequential steps: a) obtaining an electrode; b) immersing the electrode in a solution of monomer that is capable of being electropolymerized into an electrically insulating polymer; c) flowing an electric current from a cathode through the solution to the electrode at a voltage and amperage sufficient to cause the monomer to polymerize on the surface of the electrode, thereby yielding an electrode coated with an adherent layer of electrically insulating polymer; and e) impregnating the polymeric coating on the surface with a sensing agent that is capable, when contacted by a specific analyte in a chemical or biological liquid, of generating an electroactive molecule that can be detected amperometrically.

19 Claims, 24 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 24

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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7. Document ID: US 5391463 A

L3: Entry 7 of 8

File: USPT

Feb 21, 1995

US-PAT-NO: 5391463

DOCUMENT-IDENTIFIER: US 5391463 A

TITLE: Surface modification to create regions resistant to adsorption of biomolecules

DATE-ISSUED: February 21, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ligler; Frances S.	Potomac	MD		
Bhatia; Suresh	Burke	VA		
Shriver-Lake; Lisa C.	Silver Spring	MD		
Georger; Jacque	Springfield	VA		
Calvert; Jeff	Burke	VA		
Dulcey; Charles	Washington	DC		

US-CL-CURRENT: 430/272.1; 427/553, 430/271.1, 430/326, 430/927, 435/176, 435/177, 435/181, 436/525, 436/527, 436/528, 436/905

## ABSTRACT:

Irradiating, with ultraviolet light, surfaces which contain thiol groups, epoxy groups, or vicinal diol groups, results in surfaces which exhibit a reduced adsorption of biomolecules. In the case of surfaces having thiol groups such irradiation also results in a reduced capacity for the bonding of heterobifunctional crosslinking reagents. Such irradiation may be carried out in a patternwise fashion to obtain patterned surfaces.

10 Claims, 4 Drawing figures  
Exemplary Claim Number: 1,6  
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	NAME	Drawn De
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## 8. Document ID: US 5286364 A

L3: Entry 8 of 8

File: USPT

Feb 15, 1994

US-PAT-NO: 5286364

DOCUMENT-IDENTIFIER: US 5286364 A

TITLE: Surface-modified electrochemical biosensor

DATE-ISSUED: February 15, 1994

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yacynych; Alexander M.	East Brunswick	NJ		
Piznik; Sylvia S.	Jackson	NJ		
Reynolds; Eugene R.	Highland Park	NJ		



Geise; Robert J.

Piscataway

NJ

US-CL-CURRENT: [205/83](#); [204/403.11](#), [204/418](#), [205/198](#), [205/317](#), [435/817](#)

## ABSTRACT:

An electrode for a biosensor (e.g., a glucose biosensor) has a layer of an electrically insulating polymer formed in situ on its operating surface by electropolymerization. For example, a diaminobenzene and a dihydroxybenzene (e.g., 1,3-diaminobenzene and resorcinol) are copolymerized on the electrode's surface by immersing the electrode in a circulating dilute solution of the monomers in deaerated phosphate buffer, and applying a small, continuously cycling voltage between that electrode and another electrode (e.g., from 0.00 V to 0.80 V) until current flow between the electrodes decreases to a minimum. Because the polymer is electrically insulating, polymerization ceases while the polymer layer is still very thin (e.g., 10 nm). An analyte sensing agent, e.g., an enzyme such as immobilized glucose oxidase, is imbedded in the polymer, but with a number of its analyte recognition sites unblocked. The polymer layer shields the electrode surface from interferents and fouling agents such as uric acid and proteins, but it is sufficiently porous to permit smaller electroactive molecules (e.g., hydrogen peroxide) generated through contact of the enzyme with the analyte molecules to diffuse through to the electrode surface. Preferably a ferrocene compound (e.g., alpha-hydroxy-ethylferrocene or 1,1'-dimethylferrocene), which functions as an electron mediator, is applied to the polymer film, and held there by adsorption.

11 Claims, 24 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 24

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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Terms

Documents

L1 and (hexose oxidase or glucose oxidase)

8

Display Format: -

[Change Format](#)[Previous Page](#)[Next Page](#)[Go to Doc#](#)

## Hit List

Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs
Generate OACS				

Search Results - Record(s) 1 through 1 of 1 returned.

☐ 1. Document ID: US 20020106361 A1

L4: Entry 1 of 1

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Poulsen, Charlotte Horsmans	Brabrand		DK	
Kragh, Karsten Matthias	Viby J,		DK	

US-CL-CURRENT: 424/94.4; 504/117, 523/105

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw De
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
L1 and (crispus or cripus)	1

Display Format:

[Previous Page](#)

[Next Page](#)

[Go to Doc#](#)

## Hit List

Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs
Generate OACS				

Search Results - Record(s) 1 through 1 of 1 returned.

☐ 1. Document ID: US 20020106361 A1

L4: Entry 1 of 1

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Poulsen, Charlotte Horsmans	Brabrand		DK	
Kragh, Karsten Matthias	Viby J,		DK	

US-CL-CURRENT: 424/94.4; 504/117, 523/105

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	IMC	Draw D
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Terms	Documents
L1 and (crispus or cripus)	1

Display Format:

[Previous Page](#)

[Next Page](#)

[Go to Doc#](#)